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K. HOWIE

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TRICK WHEEL FOR KNITTING MACHINES

Filed Jan. 29, 1931

Fig. 1.

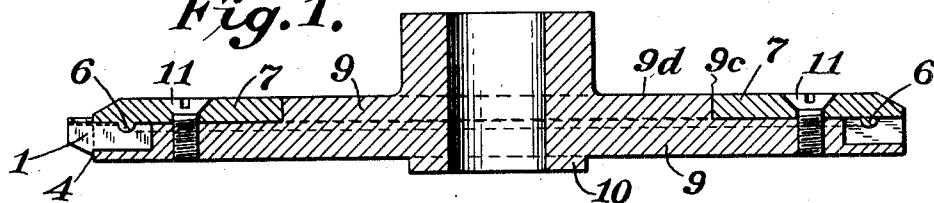


Fig. 2.

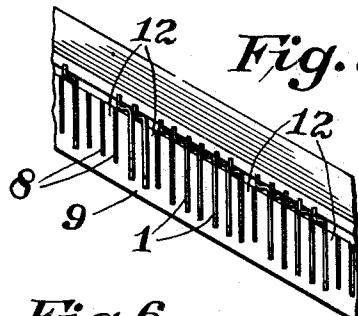


Fig. 3.

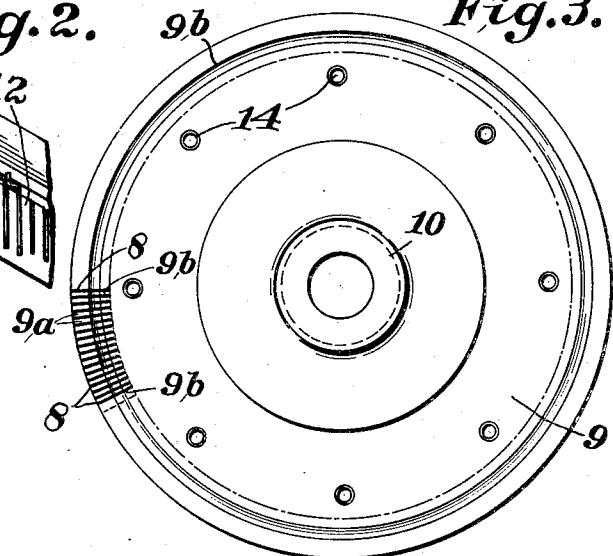


Fig. 4.

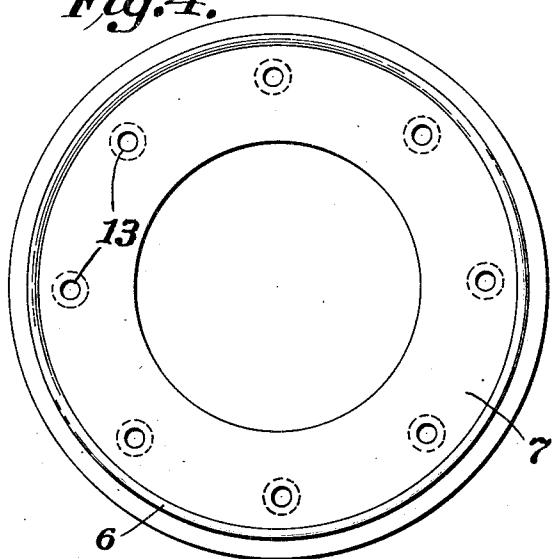


Fig. 5.

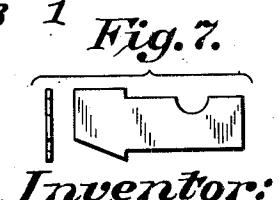
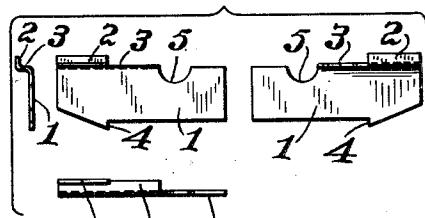


Fig. 7.



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TRICK WHEEL FOR KNITTING MACHINES

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The invention concerns a trick wheel or tuck wheel for knitting machines. One object is to provide a construction whereby fine gauges of fabric may be produced, the trick wheel being applicable to a machine of say, for instance, twenty-eight cut.

Another object of the invention is to enable the pattern to be changed as may be desired.

10 A further object is to provide a simple and economical construction.

Another object is to provide a construction of improved strength and stiffness.

A still further object is to produce a form 15 of insert piece inserted in one of the fine gauge kerfs of the trick wheel body, which insert piece of itself carries butt lifting means and means to take the driving contact thrust of the needle butt, and which functions to lift the corresponding needle independently of other insert pieces or other means.

Another object is to provide a fine gauge trick wheel constructed to omit an insert to 20 provide an idling space for a needle.

Another object is to provide such an insert piece inserted in one of the fine gauge kerfs of the trick wheel body, in which said butt lifting means is continued to provide improved stiffness and strength of the insert 25 and to provide a portion to be clamped between the cap plate and the body of the trick wheel.

A further object is to provide a trick wheel 30 having inserts of uniform construction which may be readily and inexpensively manufactured.

In the accompanying drawings,

Figure 1 is a sectional view of a trick 35 wheel embodying my invention, showing the inclined kerf and inclined insert in full.

Fig. 2 is an enlarged fragmentary view of the edge of the trick wheel of Fig. 1 inclined in the operating position in which the trick 40 wheel is to be mounted, and showing the in-

sert pieces in position to each act upon one of the needle butts, upon being engaged thereby.

Fig. 3 is a top plan view of the body of the wheel showing the cuts or kerfs to receive the 50 projections or inserts.

Fig. 4 is a bottom plan view of the cap plate.

Fig. 5 shows various views of the insert embodying my invention.

Fig. 6 is a perspective view of the insert.

Fig. 7 shows a form of plain insert suitable for insertion where a substantial number of free kerfs occur in succession, to maintain the even driving of the trick wheel by the 60 needles.

In carrying out the invention with the object of providing a trick wheel for machines of the finer gauges, I employ insert pieces 1 of thin sheet metal which are mounted in the 65 narrow closely spaced cuts or kerfs 8 of the body 9 of the wheel.

The insert pieces 1 preferably are each provided with a point 4 to bear against the periphery of the wheel body 9 and each has a 70 retaining recess or notch 5 in its upper edge to be engaged by a rib 6 on the cap piece or plate 7. The inserts are held in place in the cuts or kerfs 8 by means of the rib 6, and the plate or cap piece 7 is secured in place relative to the body piece 9, by means of countersunk screws 11. The body portion 9 of the trick wheel has a hub 10 by which the wheel is mounted on a suitable support at an inclination as indicated in Fig. 2 and as shown in 80 my Patent 1,678,907 of July 31, 1928.

The parts 9a of the body 9 between the kerfs or cuts 8 are provided with a recess or groove 9b for receiving the rib 6 of the plate 7. In Fig. 3, the groove 9b is clearly 85 shown, it being understood that the kerfs 8, indicated at one side of the figure, are actually continued throughout the periphery of the body.

The inclination of the kerfs 8 and inserts 90

1 relative to the upper and lower faces of the trick wheel is shown in Figs. 2 and 3. The inserts are thus placed in the body of the trick wheel at an angle to the upper and 5 lower faces thereof, this angle being such that when the trick wheel is mounted in operating position at an angle to a horizontal plane, the idling spaces 12 each provided by the admission of an insert from a kerf, will 10 be vertical to idly receive the butts of those needles which are not to be lifted by the trick wheel.

The butts of those needles which are to be 15 lifted by the trick wheel, will each contact 15 with the lip 2 of the insert 1, which lip 2 receives the contact thrust of the needle butt to drive the trick wheel, and the butt will be engaged and raised by the lifting shoulder or flange 3 of the insert 1, to a position to be 20 taken by a suitable cam (not shown) forming part of the machine.

Referring to Figs. 5 and 6, it will be seen 25 that the needle butt lifting shoulder 3 of the insert comprises a lateral flange from the upper edge of the insert, this butt lifting flange being continuous from the front of the insert to the notch 5 to materially strengthen and stiffen the insert against yielding movement in operation of the trick wheel.

30 The lip 2 of the insert extends upwardly from the outer edge of the flange 3 to receive the contact thrust of the needle butt. The lip 2 is continuous from the front of the insert to a point short of the notch 5, so that 35 it will be disposed without and adjacent the edge of the cap plate when the insert is in place in the trick wheel. The portion of the flange 3 between the end of the lip 2 and the notch 5 is received and clamped between the 40 cap plate and the body of the trick wheel as shown in Fig. 1, which contributes to the desirable rigidity or stiffness of the insert pieces 1 in the trick wheel. The lip 2 lies entirely outside of the wheel body.

45 By reason of the employment of inserts as the walls between the grooves, these walls can be made of thin sheet metal thus enabling the trick wheel to be produced for the finest gauges.

50 The inserts may be stamped from the thin sheet metal and the flanges 3 and lips 2 are preferably formed by turning over or bending a part of the stamped piece. Each insert is identical with every other and each 55 of the uniform inserts may be inserted in any of the uniform kerfs.

While the inserts are disposed in the successive kerfs of the wheel in close relation, as shown in Fig. 2, with the lip 2 of one insert 60 abutting the adjacent insert wall at the flange 3, there is no cooperative relation between them in lifting the needle butts. Each insert functions to lift the butt of a needle independently of the other inserts and other 65 means. This is shown clearly in Fig. 2 in

which one of the inserts has no adjacent insert on either side thereof, the kerfs on either side being free from inserts. The omission of an insert from a kerf provides a free idling space 12 for a needle which is not to be lifted. 70

The cap plate 7 may be in the form of a ring, as shown, the inner periphery of which abuts a shoulder 9c on the body, and the upper face of which is flush with the upper face 9d presented by the body 9. The countersunk clamping screws 11 are preferably disposed near the periphery of the wheel as shown in Fig. 1, they being received through openings 13 in the cap plate F and into screw threaded openings 14 in the body 9. 75

Each insert 1 is provided with means comprising flange 3 to lift a needle butt and means comprising lip 2 carried by lifting flange 3 to receive the driving contact thrust of the said needle butt. 80

Where a number of lifting inserts 1 are omitted in succession leaving a substantial succession of free kerfs 8, for instance, more than two or three, it is desirable to provide plain inserts 15 of a form such as shown in 90 Fig. 7 to maintain the geared connection of the trick wheel with the needle row. The plain inserts will be engaged by the needles to drive the wheel but will not lift the needles. Generally, however, it is not necessary 95 to use the plain inserts as ordinarily only a few butt raising inserts 1 are omitted in succession.

The plain inserts are preferably employed only when an appreciable number of kerfs 100 are left free and simply to ensure the maintenance of perfect driving timing of the trick wheel. It is, of course, possible to insert a plain insert in every free kerf not occupied by a lifting insert 1. 105

I claim:

1. An insert piece for trick wheels for knitting machines having thereon means to lift a needle butt and means to take the driving contact thrust of the said needle butt. 110

2. An insert piece for trick wheels for knitting machines having thereon means to lift a needle butt and means carried by said lifting means to take the driving contact thrust of the said needle butt. 115

3. An insert piece for trick wheels for knitting machines comprising a piece of sheet material having an offset butt lifting portion and means carried by said offset portion to take the driving contact thrust of the needle 120 butt.

4. An insert piece according to claim 3 in which said means comprises a lip extending upwardly from said offset portion.

5. An insert piece according to claim 3 125 having a notch to receive retaining means, said offset portion comprising a flange extending laterally from the top edge of the insert and said thrust sustaining means comprising a lip extending upwardly from the 130

outer edge of said offset butt lifting flange, said offset flange being continuous from the front of said insert to said notch, and said lip terminating short of said notch.

5 6. A trick wheel for knitting machines having needle lifting insert pieces mounted therein, each of said insert pieces having thereon means to lift a needle butt and means carried by said lifting means to take the 10 driving contact thrust of the said needle butt.

7. A trick wheel for knitting machines according to claim 6 in which said lifting means comprises a portion extending laterally from said insert piece, and said thrust 15 sustaining means comprises a lip extending upwardly from said lateral portion.

8. A trick wheel for knitting machines having stationary needle lifting insert pieces mounted therein, said insert pieces each having a portion to lift a needle butt and a portion to receive the driving thrust of the said needle butt, some of said insert pieces being spaced apart to provide free spaces to receive other needle butts idly.

20 9. A trick wheel for knitting machines comprising a body having cuts or kerfs therein, needle lifting insert pieces mounted in some of said kerfs having offset butt lifting means, and having also means to take the 30 driving thrust from the needle butt, at least one of said kerfs being free from an insert to provide free spaces to receive the needle butt idly, said free kerf being next to the one having one of said inserts therein.

35 10. A trick wheel for knitting machines comprising a body having cuts or kerfs therein and a cap plate, insert pieces mounted in said kerfs and having offset butt lifting means, and means to take the driving thrust 40 of the needle butts, a portion of said offset means extending between the cap plate and the body, and supported thereby.

11. A trick wheel according to claim 10 in which said insert pieces are each provided 45 with a notch to receive a portion of said cap plate, said offset means comprising a lateral flange continuous from the front of the insert to said notch, said portion of said butt lifting flange being clamped between the cap 50 plate and the body.

12. A trick wheel for knitting machines having insert pieces mounted therein, each of said insert pieces having thereon means to lift a needle butt and means to take the driving 55 contact thrust of the said needle butt.

13. A trick wheel for knitting machines having stationary insert pieces mounted therein, said insert pieces each having a portion to lift a needle butt and a portion to receive the driving thrust of the said needle butt, some of said insert pieces being spaced apart to provide free spaces to receive other needle butts idly.

14. A trick wheel for knitting machines 60 comprising a body having radial kerfs, a cap

plate for said body, insert pieces in the kerfs projecting at their outer ends beyond the body, said insert pieces having laterally extending flanges along their upper edges, a part of said flanges being exposed along the 70 projecting portions of the inserts and a part of said flanges lying on the body and between the same and the cap plate, and flanges extending up from the edges of the laterally extending flanges along those portions thereof 75 which project beyond the wheel body.

In testimony whereof, I affix my signature.
KENNETH HOWIE.

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